United States Department of Agriculture
Agricultural Marketing Service, Science & Technology
Pesticide Data Program

SOP No.: PDP-DATA-07	Page 1 of 14	
Title: Data Reduction and Reporting		
Revision: 1	Replaces: 07/01/07	Effective: 10/01/07

1. Purpose:

To provide standard procedures for data reduction, reporting, and submission for laboratories participating in the USDA/AMS Pesticide Data Program (PDP).

2. Scope:

This standard operating procedure (SOP) shall be followed by all laboratories conducting residue studies for PDP, including support laboratories conducting stability or other types of studies that may impact the program.

3. Outline of Procedure:

4. References:

- USDA/AMS PDP Quality Assurance/Technical Meeting, March 20-22, 2007, Crystal City, VA
- 40 CFR 160.130 Conduct of a study
- 40 CFR 160.185 Reporting of study results

5. Specific Procedures:

This SOP represents minimum PDP requirements and is presented as a general procedure. Each laboratory shall have written procedures that provide specific details concerning how the procedure has been implemented in that laboratory.

5.1 Raw Data Handling

5.1.a Raw data are defined as any laboratory worksheets, logbooks, records, notes, chromatograms, calculations, instrument printouts, and any other data, which are the result of original observations and activities.

5.1.b For manual entry all raw data shall be recorded directly, promptly, and legibly in permanent ink. Pencil or erasable pen is not acceptable. All data entries shall be dated on the date of entry and signed or initialed by the person entering the data. Each individual error shall be corrected using a single-line cross out (no white-out). It is recommended, but not required, that the reason for the correction be indicated. Each correction shall be dated and initialed. Documented error codes may be used to explain errors. Correction of multiple errors may be accomplished in the following manner: on first occurrence of the error, or on a summary sheet, make/indicate the appropriate correction, including date, initials, explanation of error/error code, and all affected subsequent entries. Each subsequent occurrence of the error must then be corrected, dated, and initialed.

5.1.c Each participating laboratory shall prepare internal worksheets for raw data collection (e.g. homogenization and extraction worksheets). Worksheets may be prepared electronically. The worksheets shall be organized in a logical manner (e.g., chronologically, or by sample number). No pages shall be destroyed.

5.1.d For electronic raw data entry/data acquisition systems (e.g., HP ChemStations) the individual responsible for direct data input shall be identified at the time of input. Each sheet generated as part of a printout of acquired data shall be signed or initialed, OR a laboratory may choose to use signed and dated summary sheet(s) showing calculated results. All chromatograms shall be retained. Chromatograms that have been manipulated through the data system shall be clearly labeled as reprocessed/manipulated and shall indicate the reason for reprocessing.

5.1.e Where computers or automated equipment are used for the capture, processing, manipulation, recording, or reporting of data, the laboratory shall ensure that:

5.1.e.1 Computer software is documented and adequate for use. An example is documentation of Excel spreadsheets and macros. A model set of input data and associated results which have been validated could be constructed. This model could be run periodically to verify correct operation;

5.1.e.2 Procedures are established and implemented for protecting the integrity of data (such procedures shall include but not be limited to integrity of data entry or capture, data transmission, and data processing);

5.1.e.3 Computer and automated equipment is maintained to ensure proper functioning and provided with the environmental and operating conditions necessary to maintain the integrity of calibration and test data;

5.1.e.4 Appropriate procedures are established and implemented for the maintenance of security of data including the prevention of unauthorized access or amendment of electronic records.

5.2 Calculations and Significant Figures

5.2.a Each laboratory shall have an internal SOP describing the data manipulation steps taken to reach the final reported concentration. No data shall be ignored without a written explanation (e.g., instrument malfunction, wrong standard used, co-eluting peak, etc.). Laboratories shall not use the "best two out of three" criteria for data reporting.

5.2.b In all calculations at least one significant figure in excess of the reporting requirements shall be carried through the calculation. When rounding is required, values greater than or equal to 5 shall be rounded up.

5.2.c Percent recoveries shall be reported to two significant figures if less than 100 or to three significant figures if greater than 100.

5.2.d All concentrations shall be reported to at least two significant figures in parts per million (ppm), parts per billion (ppb), or parts per trillion (ppt) on the hardcopy Laboratory Information Form (LIF) and the Remote Data Entry (RDE) analytical results section.

5.2.e Individual peaks may be reported for other multiple peak compounds (e.g., chlordane, dicofol, DDD, DDE, DDT, endosulfans, methoxychlor, nonachlor). If separate standards are available for separate isomers, it is preferable to report the isomers separately.

5.3 Chromatogram Labels

5.3.a Each chromatogram shall be adequately labeled (individually or on a cover sheet) to preserve data integrity (refer to Subsection 5.4 of this SOP).

5.3.a.1 Date and time of data acquisition
5.3.a.2 Sample identification number or standard code
5.3.a.3 Identity of analyst(s) setting up analytical run
5.3.a.4 If different, identity of analyst(s) who processed or reprocessed the data for quantitation

5.4 Hardcopy Data Package Requirements

5.4.a Routine sample data packages and method validation data packages retained by the State or Federal laboratory shall consist of laboratory records (i.e., worksheets and/or completed forms), USDA collection and report forms (where applicable), and supporting technical data in the form of chromatograms and integration reports, calculations, and derived data. Additional data requirements consist of two types, instrument and chromatographic. It is intended that all of this information be contained in a data package.

5.4.a.1 Instrument information consists of instrument type and identifier, detector type, injection volume, date and time of injection, dilution information, temperature parameters (injector, detector, oven), analytical column parameters (phase, film thickness, diameter, length), and instrument parameters (integration threshold, attenuation, timed events).

5.4.a.2 Chromatographic information consists of sample ID, analyst name, dilution information, and date and time of injection.

5.4.b At a minimum, hardcopies of data sets for which results are electronically reported to the USDA/AMS Monitoring Programs Office (MPO) shall include the following: instrument methods (data acquisition, calibration/ standardization, and data analysis parameters); injection sequences; chromatograms of samples, standards, reagent blanks, matrix blanks, and matrix spikes; PDP Sample Information Forms (SIFs) [if paper SIFs were submitted by the Sample Collector]; matrix blank,

reagent blank, and matrix spike results; sample results; and documentation of technical and QA review. Additional elements of the data package shall be at the discretion of the local Technical Program Manager (TPM) and Quality Assurance Unit (QAU). *Note: An exception is granted for the requirement to include the complete analytical method with each data set for mass spectrometry (MS) methods. One copy of the entire method with acquisition parameters for every compound shall be kept for reference.*

5.4.c Hardcopies of method validation data packages submitted to MPO shall include copies of the summary reporting forms, narrative describing the method, and cover memo submitted to the PDP Technical Director (refer to SOP PDP-QC-07, Subsection 7.9.b).

5.5 Determination of Residue Concentrations for PDP Reporting Purposes

5.5.a Validated Pesticide/Commodity Pairs

A pesticide/commodity pair is considered validated when all applicable modules in SOP PDP-QC-07 have been met.

5.5.a.1 Compounds appearing on the analytical results list for which results are not/cannot be reported shall be coded as "M" [not analyzed (e.g., compound not screened in applicable run)] or "U" [unable to detect (e.g., associated matrix spike failed)] in the mean result field of the hardcopy LIF and the RDE analytical results section.

5.5.a.2 Do not report residue concentrations less than the verified Limit of Detection (LOD). These results shall be coded as "ND" (non-detect); "NA" (non-detect – averaged analysis); or "NR" (non-detect – rerun analysis) in the mean result field of the hardcopy LIF and the RDE analytical results section.

5.5.a.3 A laboratory may elect to set LOD equal to the Limit of Quantitation (LOQ) provided all of the following conditions are met: the analyses are completely performed via MS systems (i.e., quantitation and self-confirmation) **and** the qualifier ions are at least three times signal to noise **and** the quantitation ions have a response at least ten times signal to noise. The laboratory shall code the findings (both detects and non-detects) as "Z" [LOD equals LOQ] in the "Test Class" section of the hardcopy LIF and the RDE analytical results section.

5.5.a.4 Numeric concentrations below the LOQ are considered low confidence values associated with a qualitative finding. A concentration value is not required when a pesticide is detected at or above the determined LOD and below the determined LOQ. The laboratory shall code the finding as "Q" [residue at below quantifiable level (BQL)] in the "Annotated Info." section of the hardcopy LIF and the RDE analytical results section. The concentration will be converted to ½ LOQ in the PDP database for reporting purposes. Detections shall be coded as: "O" (detect – original analysis value); "A" (detect – average of original and re-extract); or "R" (detect – re-extraction analysis value) in the mean result field of the hardcopy LIF and the RDE analytical results section. The laboratory shall enter "H" (standard not in matrix); "M" (standard in matrix); "PH" (standards prepared using analyte protectants - not in matrix); "PM" (standards prepared using analyte protectants - in matrix); "SH" (internal standards - not in matrix); or "SM" (internal standards - in matrix) in the quantitation field of the hardcopy LIF and the RDE analytical results section.

5.5.a.5 Residue concentrations greater than or equal to the LOQ shall be reported on the hardcopy LIF and the RDE analytical results section. Detections shall be coded as: "O" (detect – original analysis value); "A" (detect – average of original and re-extract); or "R" (detect – re-extraction analysis value) in the mean result field of the hardcopy LIF and the RDE analytical results section. The laboratory shall enter "H" (standard not in matrix); "M" (standard in matrix); "PH" (standards prepared using analyte protectants - not in matrix); "PM" (standards prepared using analyte protectants - in matrix); "SH" (internal standards - not in matrix); or "SM" (internal standards - in matrix) in the quantitation field of the hardcopy LIF and the RDE analytical results section.

5.5.b Unvalidated Pesticide/Commodity Pairs

As a rule, unvalidated residues should not be reported. However, unvalidated residues may be reported on a case-by-case basis. For example, identification and tentative quantitation of a compound not currently included in the analytical screen or preliminary results for special projects. Procedures to be followed in these instances are as follows:

5.5.b.1 Concentrations less than the estimated LOD shall not be reported. Results for unvalidated non-detects shall be coded as "NU" in the mean result field of the hardcopy LIF and the RDE analytical results section.

5.5.b.2 A laboratory may elect to set LOD equal to the LOQ provided all of the following conditions are met: the analyses are completely performed via MS systems (i.e., quantitation and self-confirmation) **and** the qualifier ions are at least three times signal to noise **and** the quantitation ions have a response at least ten times signal to noise. The laboratory shall code the findings (both detects and non-detects) as "Z" [LOD equals LOQ] in the "Test Class" section of the hardcopy LIF and the RDE analytical results section.

5.5.b.3 A concentration value is not required when a pesticide is detected at or above the determined LOD and below the determined LOQ. The laboratory shall code the finding as "Q" [residue at below quantifiable level (BQL)] in the "Annotated Info." section of the hardcopy LIF and the RDE analytical results section and provide the estimated LOD and LOQ concentrations. The concentration will be converted to ½ LOQ in the PDP database for reporting purposes. The laboratory shall enter "HU" (standard not in matrix – unvalidated residue), "MU" (standard in matrix - unvalidated residue), "SU" (internal standard in matrix – unvalidated residue), or "TU" (internal standard not in matrix – unvalidated residue) in the quantitation field of the hardcopy LIF and the RDE analytical results section.

5.5.b.4 Residue concentrations greater than or equal to the estimated LOQ shall be reported on the hardcopy LIF and the RDE analytical results section. The laboratory shall enter "HU" (standard not in matrix – unvalidated residue), "MU" (standard in matrix – unvalidated residue), "SU" (internal standard in matrix – unvalidated residue), or "TU" (internal standard not in matrix – unvalidated residue) in the quantitation field of the hardcopy LIF and the RDE analytical results section.

5.6 Non-violative results

Non-violative results for PDP reporting purposes are residue determinations that do not exceed a stated tolerance. A tolerance is the maximum amount of a pesticide residue that is permitted in or on a food. A detected residue concentration is considered to be non-violative if it is equal to or less than the 40 CFR 180 tolerance for the given commodity. If no commodity tolerance exists then the group tolerance (if available) should be used. If no commodity or group tolerance is established or section 18 reference noted, the tolerance shall be considered zero. All concentrations shall be reported on the hardcopy LIF and the RDE analytical results section.

5.7 Presumptive Tolerance Violations (PTV)

Tolerances are established by EPA under the authority of the Federal Food, Drug, and Cosmetic Act (FFDCA) and are listed in 40 CFR 180. Tolerances are usually established for a specific commodity, however, tolerances may also be established by the commodity groupings established by EPA in 40 CFR 180 or Section 18 tolerances may apply.

5.7.a A residue is considered to exceed the 40 CFR 180 tolerance when the reported value exceeds the tolerance by one number in the second significant figure, or in the case of a single significant figure in the tolerance expression, by one number in that significant figure. For example, if the tolerance is 20 ppm, then a "presumptive violation" would occur at 21 ppm. If the tolerance is 1.0 ppm, then a "presumptive violation" would occur at 1.1 ppm. If the tolerance is 1 ppm, then a "presumptive violation" would occur at 2 ppm.

5.7.b If the pesticide residue exceeds the established tolerance or does not have an established tolerance, the laboratory shall report the appropriate code in the annotated information field of the hardcopy LIF (refer to attachment 1) and the RDE analytical results section.

5.7.c PTV Notification Policy

All PTVs will be transmitted via RDE during normal data submission process (Section 5.12 of this SOP). MPO will notify HQ FDA. If States have a cooperative agreement with local FDA, MPO will also send a State-specific report to the laboratories, if requested.

5.8 Data Review

5.8.a Each data package shall be reviewed, at minimum, as documented in this SOP. Each data package shall undergo review by the technical section for accuracy and completeness prior to submission to the QAU. Each data package shall also undergo review by the QAU for integrity of the overall quality system and adherence to PDP criteria. The QAU shall have access to all documentation necessary to achieve this objective. Both technical and QA reviews shall be documented. At a minimum, the data package shall be reviewed to ensure the following:

> **5.8.a.1** Chain-of-custody is maintained. Samples are properly logged as specified in PDP-LABOP-01.

5.8.a.2 The data package is clearly labeled with a minimum of year, month, and commodity.

5.8.a.3 All data is legibly recorded in permanent blue or black ink.

5.8.a.4 All errors are corrected using single-line cross out. Each correction is dated, initialed, and annotated as required in Section 5.1.b of this SOP.

5.8.a.5 All marker compounds are spiked and meet criteria as specified in PDP-QC-04. Any failure to meet criteria is investigated and documented by the TPM or designee per PDP-QC-04.

5.8.a.6 All appropriate QA/QC samples are prepared and meet criteria as specified in PDP-QC-04. Any failure to meet criteria is investigated and documented by the TPM or designee per PDP-QC-04.

5.8.a.7 All results are correctly entered and annotated on the QA Recovery Data Form, RDE QA spike section, RDE analytical results section, and hardcopy LIF, including BQL, PTVs, etc.

5.8.a.8 All instrument methods and sequences are printed and dated and initialed by the analyst. Exceptions are mass spectrometer methods containing large calibration tables. Exceptions shall be agreed upon by the TPM and QAU and shall be documented.

5.8.a.9 Each sequence shall identify the analyst, instrument, column (or the method if the column is specified in the method), and unique identifier for that sequence.

5.8.a.10 Calibration data are included and are correctly updated.

5.8.a.11 All standards are traceable. Refer to PDP-STD-01 documentation and coding requirements.

5.8.a.12 All calculations are done using a calibration curve or single-point calculation as specified in PDP-DATA-03, Sections 5.3 and 5.4.

5.8.a.13 Calibration integrity is performed as required in PDP-DATA-03. Any failure to meet the specified criteria is documented.

5.8.a.14 All chromatograms are labeled as required in Section 5.3 of this SOP. At minimum, the following is included on each chromatogram or cover sheet generated for that analytical run: analyst, instrument, column (see 5.8.a.9 above), method, sequence, commodity, and date of analysis.

5.8.a.15 All reported peaks are correctly identified.

5.8.a.16 Retention times are within approved limits.

5.8.a.17 All reprocessed chromatograms and associated reports are clearly labeled.

5.8.a.18 All re-injections, re-extractions, etc. are clearly identified and documented.

5.8.a.19 All positive findings are confirmed per PDP-DATA-03.

5.8.b Following QAU review of a data package, that data may not be changed by any laboratory personnel unless as a response to comments/concerns/recommendations by the QAU. All corrective actions taken as a result of technical and/or QA findings shall be documented.

5.9 RDE System Administration

5.9.a Each laboratory and/or TPM shall designate an individual or individuals to administer applicable aspects of the RDE system. MPO shall create or modify the RDE account for the designated individual to grant laboratory system administrator privileges.

5.9.b The laboratory system administrator shall create RDE user accounts for laboratory personnel using the Maintain User option on the RDE System Admin menu. Each user account shall be assigned one or more roles, which serve as defined permissions to access the different RDE options, based on position requirements.

5.9.c The laboratory system administrator shall disable the RDE user account promptly when an individual terminates employment with the organization.

5.9.d The laboratory system administrator may reset passwords and unlock accounts as needed using the Maintain User option in the RDE System.

5.10 RDE System Access

5.10.a The RDE system requires a Web browser and an assigned user account and password to gain access.

5.10.b Laboratory users shall access the secured RDE site by preceding the Web address with "https" for encrypted data communication between the central server and the user's workstation.

5.10.c Users within USDA-AMS shall access RDE on the secondary production Web server, which is a protected connection inside the AMS firewall.

5.10.d Laboratory users shall access RDE on the alternate, developmental Web server only when the primary, secured site is unavailable.

5.11 RDE Data Entry

5.11.a The laboratory shall create analytical sets, referred to as Groups in RDE, so that all samples related to a QA Recovery Data Form are included under one unique Group identification number. Multiple Groups for the same commodity and month are acceptable.

5.11.b Matrix Spike Recovery data shall be entered that are associated to all samples in the Group as specified in PDP-QC-01, Sections 5.1 and 5.4.

5.11.c Sample identity information shall be entered from a paper SIF or attached to the Group if an electronic SIF was submitted.

5.11.d Analytical Results data shall be entered for each sample as specified in Subsections 5.5 through 5.7 of this SOP.

5.11.e Process Control spike recovery data shall be entered for each sample as specified in PDP-QC-01, Section 5.5.

5.11.f Data may be entered and maintained on a Laboratory Management Information System (LIMS), but shall be imported into the RDE System for sign-off and transmission to MPO.

5.11.g Refer to the latest RDE System documentation for further information.

5.12 RDE Data Sign-off and Transmission

5.12.a The data must go through a multi-level review and sign-off process prior to submission to MPO. The RDE system provides for up to three reviewer sign-offs for each analytical set, by an analyst, the TPM (or designee), and the laboratory Quality Assurance Officer (or designee). The first level sign-off is optional, while the TPM and Quality Assurance Officer sign-offs are required by the RDE system before the analytical set is allowed to be transmitted. Data may be maintained on a LIMS, but must be transmitted through the web-based RDE system.

5.12.b All data shall be electronically transmitted to MPO as described in Section 5.12.c of this SOP using the Transmit option in the RDE System. Analytical data on any other media shall not be submitted without prior authorization from MPO.

5.12.c Participating laboratories shall submit electronic results for routine data sets to MPO via RDE within 90 days of sample receipt according to established procedures as detailed in Sections 5.9 through 5.11 of this SOP. If the 90 day reporting requirement is not met, the laboratory shall send the MPO Director monthly updates detailing the reason for the delay and a projected schedule for data delivery. If the 90 day reporting requirement is not met **AND** the laboratory does not provide information regarding the reason for the delay and a projected data delivery schedule, MPO will issue a warning letter to the laboratory.

5.12.d MPO and the laboratory will come to a written agreement, on a case-by-case basis, regarding any changes to be made to program data after it has been reported to the PDP database. The laboratory shall be responsible for making any changes to hardcopies and their own internal database/records.

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Revision 1 September 2007 Monitoring Programs Office

- Specified in Section 5.12.c, that MPO will issue a warning letter to participating laboratories that do not meet the 90 day reporting requirement AND do not notify the MPO Director of the reason for the delay and provide a projected delivery schedule
- Deleted reference to method validation reporting from Section 5.12.c as these data are not reported via RDE

Original

- Combined all PDP data reduction, reporting, and submission requirements into a single document
- Removed “electronic data” from Subsection 5.1.a
- Added reporting requirements (Subsection 5.8)
- Added provisions for use of “LOD=LOQ” in Subsections 5.5.a.3 and 5.5.b.2

Pesticide Data Program
Laboratory Information Form Codes

CONFIRMATION CODES

CODE	CONFIRMATORY METHOD (Instrumental method used to confirm analyte identity)
A	GC/AED - Gas Chromatography with Atomic Emission Detector
C	GC or LC Alternate Column
CD	GC or LC Alternate Column and Alternate Detector
D	GC or LC Alternate Detector
F	Liquid Chromatography with Fluorescence Detector
GF	GC/TOF - Gas Chromatography with Time of Flight Mass Spectrometry
GI	GC/MS/MS - Gas Chromatography with Tandem Mass Spectrometry - ion trap
GN	GC/MSD w/ Negative Chemical Ionization (NCI)
GT	GC/MS/MS - Gas Chromatography with Tandem Mass Spectrometry - triple quadrupole
HR	GC or LC High Resolution Mass Spectrometry
I	GC/IT - Gas Chromatography with Ion Trap Mass Spectrometry - single stage
IA	Immunoassay
LF	LC/TOF - Liquid Chromatography with Time of Flight Mass Spectrometry
LI	LC/MS - Liquid Chromatography with Ion Trap Mass Spectrometry - single stage
LL	LC/MS/MS - Liquid Chromatography with Tandem Mass Spectrometry - ion trap
LS	LC/MS - Liquid Chromatography with Mass Spectrometry - single quadrupole
LU	LC/MS/MS - Liquid Chromatography with Tandem Mass Spectrometry - triple quadrupole
M	GC/MS - Gas Chromatography with Mass Spectrometry - single quadrupole
MO	Quantitation & Confirmation by GC/MS only
MR	GC or LC Mid Resolution Mass Spectrometry
P	LC-AMP - Liquid Chromatography Alternate Mobile Phase
R	LC-DAD - Liquid Chromatography with Diode Array Detector
S	GC or LC -MS Alternate Detector (see PDP-Data-03.5.7)
Z	Other

ANNOTATION CODES

CODE	ANNOTATED INFORMATION (Additional information about analyte finding)
Q	Residue at Below Quantifiable Level (BQL)
QV	Residue at <BQL> with a Presumptive Violation - No Tolerance
QX	Residue at <BQL> with a Presumptive Violation - Exceeds Tolerance
V	Residue with a Presumptive Violation - No Tolerance
X	Residue with a Presumptive Violation - Exceeds Tolerance

QUANTITATION CODES

CODE	QUANTITATION (Method used to calibrate, quantitate or validate analyte)
HE	Standard Not in Matrix - Estimate Calibration Integrity Requirements Not Met
ME	Standard in Matrix - Estimate Calibration Integrity Requirements Not Met
H	Standard Not in Matrix
HU	Standard Not in Matrix - Unvalidated Residue
M	Standard In Matrix
MU	Standard In Matrix - Unvalidated Residue
PH	Standard Prepared Using Analyte Protectants - Not in Matrix
PM	Standard Prepared Using Analyte Protectants - In Matrix
SH	Internal Standard - Not in Matrix
SM	Internal Standard - In Matrix
SU	Internal Standard in Matrix - Unvalidated Residue
TU	Internal Standard Not in Matrix - Unvalidated Residue
U	Unvalidated Residue

Pesticide Data Program
Laboratory Information Form Codes

MEAN RESULT CODES

CODE	MEAN RESULT (Summary of analyte findings and how they were determined)
A	Detect - Average of Original and Re-extraction Analyses Values
M	Not Analyzed
NA	Non-Detect - Averaged Analysis
ND	Non-Detect - Original Analysis
NR	Non-Detect - Re-extraction Analysis
NU	Non-Detect - Unvalidated Residue
O	Detect - Original Extraction Value
R	Detect - Re-extraction Analysis Value
U	Unable to Detect

DETERMINATIVE CODES

CODE	DETERMINATIVE METHOD (Instrumental method used to quantitate analyte)
01	GC/ECD - Electron Capture Detector
02	GC/FPD - Flame Photometric Detector in Phosphorus Mode
03	GC/FPD - Flame Photometric Detector in Sulfur Mode
04	GC/ELCD - Electrolytic Conductivity Detector in Nitrogen Mode
05	GC/ELCD - Electrolytic Conductivity Detector in Halogen Mode
06	GC/FID - Flame Ionization Detector
07	GC/MS - Gas Chromatography with Mass Spectrometry - single quadrupole
08	GC/IT - Gas Chromatography with Ion Trap Mass Spectrometry - single stage
09	TLC - Thin Layer Chromatography
10	LC/FL - Liquid Chromatography with Fluorescence Detector
11	LC/UV - Liquid Chromatography with UV Detector
12	Liquid Chromatography with Post-Column Derivatization & Fluorescence Detection
14	GC/NPD - Phosphorus Mode
15	GC/NPD - Nitrogen Mode
16	GC/NPD - Nitrogen/Phosphorus Detector
18	GC/FPD - Flame Photometric Detector in Nitrogen Mode
19	Liquid Chromatography with Pre-Column Derivatization & Fluorescence Detection
27	GC/AED - Atomic Emission Detector
28	AED - Element Selective GC/AED
30	GC/ELCD - Electrolytic Conductivity Detector in Sulfur Mode
35	GC/MS/MS - Gas Chromatography with Tandem Mass Spectrometry - triple quadrupole
51	LC/MS - Liquid Chromatography with Mass Spectrometry - single quadrupole
52	LC/MS/MS - Liquid Chromatography with Tandem Mass Spectrometry - triple quadrupole
58	GC - Gas Chromatography w/ Detector other than Listed
59	LC - Liquid Chromatography w/ Detector other than Listed
60	GC/XSD - Halogen Specific Detector
63	Second LC/MS
64	Second LC/MS/MS
65	GC/Micro ECD - Micro Electron Capture Detector
66	GC/PFPD - Pulsed Flame Photometric Detector
67	Third LC/MS/MS
68	Second GC/ECD
70	Fourth LC/MS/MS
71	Second GC/Micro ECD
72	GC/MSD with Negative Chemical Ionization (NCI)
73	GC/MS/MS - Gas Chromatography with Tandem Mass Spectrometry - ion trap

Pesticide Data Program
Laboratory Information Form Codes

DETERMINATIVE CODES (cont)	
CODE	DETERMINATIVE METHOD (Instrumental method used to quantitate analyte)
74	LC/MS - Liquid Chromatography with Ion Trap Mass Spectrometry - single stage
75	LC/MS/MS - Liquid Chromatography with Tandem Mass Spectrometry - ion trap
76	GC/TOF - Gas Chromatography with Time of Flight Mass Spectrometry
77	LC/TOF - Liquid Chromatography with Time of Flight Mass Spectrometry
98	Immunoassay Screen
99	OTHER

EXTRACTION CODES	
CODE	EXTRACTION METHOD (Extraction method used for this analyte)
000	No Extraction Necessary
015	Modified Luke Extraction Method without Cleanup for Multi-Residues & Carbamates
550	CDFA Lee et al C-18 Extraction Method
551	CDFA Chlorinated ACN Florisil SPE Extraction Method
552	CDFA MSD Aminopropyl Extraction Method
553	CDFA Carbamate SPE Extraction Method
554	CDFA Organophosphate Florisil SPE Extraction Method
555	CDFA Chlorinated Aminopropyl SPE Extraction Method
556	CDFA LC compounds Florisil SPE Extraction Method
800	FL-Modified CDFA C-18 Extraction Method (P-fraction)
801	FL-Modified CDFA C-18 Extraction Method Aminopropyl SPE Cleanup
802	FL-Modified CDFA C-18 Extraction Method w/ Florisil SPE Cleanup
803	GIPSA Modifed Method for Extraction of Multi-Residues in Grains
804	GIPSA Modified Method for Determination of Triazole Metabolites in Wheat Flour (SPE,
805	Modified Quecher's Method
806	NYS Modifed SPE Method (F&V)
807	NYS Modified Method for Determination of Triazoles and Metabolites in Peaches (SPE,
808	WSDA Modified Method for Determination of Triazoles and Metabolites in Apples (SPE,
809	NSL Butter Extraction Method
810	Montana SPE Triazole Extraction Method for Water
811	Montana SPE Extraction Method for Polar Pesticides (Water)
812	Montana Liquid/Liquid Extraction Method for Non-Polar Pesticides
813	NSL Dairy Product Method
814	WA-Modified CDFA C-18 Extraction Method (P-fraction)
815	WA-Modified CDFA C-18 Extraction Method Aminopropyl SPE Cleanup
816	WA-Modified CDFA C-18 Extraction Method w/Florisil SPE Cleanup
817	FL Aminopropyl SPE Extraction Method
818	NSL Animal Tissue Extraction Method
900	Liquid/Liquid Method
901	NYS Modification of USGS Method 2001/2002 (SPE, GC)
902	NYS Modification of USGS Method 9060 (SPE, LC)
903	NYS Modification of USGS Method for Chloroacetanilide Metabolites (SPE, LC)
998	OTHER Single-Analysis Methods
999	OTHER Multi-Residue Methods

Pesticide Data Program
Laboratory Information Form Codes

TEST CLASS CODES	
CODE	TEST CLASS (Test classifications for analytes)
A	Halogenated
B	Benzimidazole
C	Organophosphorus
D	Avermectin
E	Carbamate
F	Organonitrogen
G	2,4-D / Acid Herbicides
H	Formetanate HCL
I	Other Compounds
J	Imidazolinone
K	Sulfonyl Urea Herbicides
L	Conazoles / Triazoles
M	Dithiocarbamates
N	Imidazoles
O	Pyrethroids
P	Thiocarbamates
Q	QA only (for RDE)
R	Triazines
S	Triazine, Non-Halogenated
T	Nitrile
U	Uracil
V	Pyrimidone
W	Morpholine
Z	LOD equals LOQ (for RDE)